

REMARKS

Claims 22-36 are pending in this application. By this Amendment, claims 22-34 are amended to address informalities. Claims 35 and 36 are newly added. Support for the new claims can be found in the original specification in original claims 33 and 34. No new matter is added.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Levkovich in the interview held January 29, 2009. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

Drawing Objection

The drawings were objected to for allegedly not showing the feature of claim 22 of two trapping chambers for a gas that communicate only and respectively with the at least two ducts and, by means of distinct channels for connecting, respectively, the at least two ducts. Applicants respectfully traverse this rejection.

This feature of claim 22 is illustrated in at least Figs. 1-3 and 7-8. For example, Fig. 1 illustrates two trapping chambers 81 and 82 that communicate only and respectively with the ducts 61 and 62 by means of distinct channels 91 and 92. Thus, the two trapping chambers for a gas that communicate only and respectively with the at least two ducts and, by means of distinct channels for connecting, respectively, the at least two ducts is clearly illustrated in the drawing Figures.

For at least the foregoing reasons, withdrawal of the objection is respectfully requested.

35 U.S.C. §112 Rejection

Claims 22-34 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Applicants respectfully traverse this rejection.

Claim 22 has been amended to remove the language "produced from" and "of the type".

Claims 22, 33 and 34 have been amended to remove the language "for example".

Claim 24 has been amended to remove the term "interface" and instead recite the term "meniscus".

Claims 24 and 25 have been amended to depend from claim 23 to address the antecedent basis issue regarding the capillary valve.

Claim 28 has been amended to address the antecedent basis issue regarding the two connecting channels.

Claims 30 and 31 have been amended to remove the language "in particular" to more fully define that the trapping/expansion chambers are substantially identical in volume.

Claim 32 has been amended to recite "the operative cavity comprises particles that form a support functionalized with a ligand" to more fully define that the particles form the support.

The Patent Office alleges it is not clear what structural features of the valves would regulate flow. However, the specification, for example, at page 1, lines 21-26 and 33-35, page 9, lines 23-37, and Figs. 4-6, describes such valves as capillary valves, thermopneumatics and the use of microbubbles. For example, a capillary valve has a capillary type restriction that opposes flow in a given direction. The capillary valves may work, for example, by generating an interface (meniscus) between a liquid and a gas, the meniscus generates an overpressure that opposes the flow of a liquid in a given direction, up to a threshold pressure. See page 9, lines, 23-37, of the specification. It is thus clear how the valves, with no moving parts, of claim 22 regulate flow.

The Patent Office alleges that it is not clear what structural features of claim 25 cause a change of cross section of the base of the capillary valve. However, the specification at, for

example, drawing Figs. 4-6, clearly illustrates this feature of claim 25. For example, Figs. 4 and 5 illustrate a narrowing of the cross section of a capillary valve in the case of a wetting liquid. As illustrated in Fig. 5, the cross section of the capillary valve is narrower toward the meniscus and widens in a downward direction toward the expansion chamber. See also page 12, lines 36-38, of the specification. Thus, the language "a cross section of which increases in a direction of a concavity of the meniscus when the liquid of interest is wetting, or the cross section of which decreases in the direction of the concavity when the liquid of interest is not wetting" of claim 25 is clear.

The Patent Office alleges that it is not clear how the isolating means are interrelated with the valve bodies, as recited in claim 26. However, the present specification at, for example, page 12, lines 6-12 and Figs. 1-3, clearly illustrates isolating means 201 and 202 are placed, respectively, on the at least two ducts 41 and 42, each isolating means taking up two positions, the two positions being an open position that establishes communication from one duct with the outside, and a closed position that isolates the duct from the outside. It is thus clear how the isolating means are disposed in the fluidic device.

In view of the foregoing amendments and remarks, claims 22-34 are definite.

Withdrawal of the rejection is thus respectfully requested.

35 U.S.C. §102(b) Rejection

Claims 22-34 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Shartle (U.S. Patent No. 5,627,041). Applicants respectfully traverse this rejection.

The Patent Office alleges that Shartle describes all of the features of claim 22. However, for at least the following reasons, Shartle does not describe all of the features of at least claim 22.

The fluidic device of claim 22 requires at least two ducts, the at least two ducts comprising an inlet duct and an outlet duct for a liquid of interest, wherein the at least two

ducts communicate with the operative cavity, respectively, by means of a valve body with no moving parts, for controlling the operative cavity. For at least the following reasons, Shartle does not describe these features of claim 22.

Shartle describes a cartridge for biological sample analysis by an imaging instrument. Shartle describes that the cartridge uses a series of channels, capillaries, reservoirs and stop junctions to move a sample, reagent and diluent through the cartridge. See the Abstract of Shartle.

Shartle describes a first connecting arm 75 and a second connecting arm 76 (allegedly equivalent to the ducts of claim 22). Shartle describes that a diluent flows from a crushed glass ampule 60 into diluent reservoir 62, through exit capillary 66, up the exit stop junction 68, through a cross channel 70 and down the cross channel exit capillary 72 to a diluent connecting channel 74. The flow is then diverted to connecting arms 75 and 76. See col. 11, lines 43-55 and Fig. 6, of Shartle. However, it is clear that capillary stop junction 68 and exit capillary 72 are connected to the first connecting arm 75 and second connecting arm 76 with no valve body. Thus, Shartle does not describe, in any way, at least two ducts that communicate with the operative cavity, respectively by means of two valve bodies with no moving parts, as required by claim 22.

Claim 22 also requires two trapping chambers for a gas that communicate only and respectively with the at least two ducts. In contrast, Shartle describes mixing chambers 48 and 49 (allegedly equivalent to the trapping chambers of claim 22) that are equipped with vents for purging air while the mixing chambers are filling with diluent. See col. 11, lines 56-65, of Shartle. Thus, the mixing chambers, or any other part, of Shartle do not describe, in any way, the trapping chambers of claim 22.

Claim 22 also requires two trapping chambers for a gas that communicate only and respectively with the at least two ducts and, by means of distinct channels for connecting,

respectively, the at least two ducts. In contrast, Shartle does not describe, in any way, distinct channels that would connect connecting arms 75 and 76 to the mixing chambers 48 and 49. Thus, Shartle does not describe this additional feature of claim 22.

Claim 22 also requires means for heat exchange with one and/or the other trapping chamber, in order to control the pressure of the gas in one and/or the other trapping chamber. Shartle does not, in any way, describe a means for heat exchange. Further, because the mixing chambers 48 and 49 contain vents, a pressure in the mixing chambers could not be controlled by changing the temperature of the mixing chambers. Thus, Shartle does not describe this additional feature of claim 22.

For at least the foregoing reasons, Shartle does not describe all of the features of claim 22. Accordingly, for at least their respective dependency on claim 22 and the additional features recited, Shartle does not describe all of the features of claims 23-36. Withdrawal of the rejection is thus respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 22-36 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: February 2, 2009

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